

U.S. Patent Application of Tokmulin et al.
Serial No.: 08/860,763
Art Unit: 1763

C3
cut plasma jet generator located inside said chamber.

REMARKS

This Amendment is responsive to the final Office Action in the parent application mailed April 25, 2000, and is being submitted as a Preliminary Amendment with the CPA patent application filed herewith. The Examiner's comments have been carefully considered.

Claims 2 and 6 have been rejected as being fully anticipated by the Gasworth patent for reasons set forth in paragraph 4 of the Office Action, while claim 3 has been rejected as being obvious on the basis of Gasworth in view of or when combined with the Japanese Publication JP4-124092 or Ikegaya, for reasons set forth in paragraph 6 of the Office Action. However, it is noted that claims 7-13 have been allowed while claims 4 and 5 have merely been objected to as being dependent on a rejected claim. By this Amendment, allowable claim 4 has been canceled without prejudice and re-written as new claim 14. Claim 5, which depends from claim 14, should also be allowed with the allowance of claim 14.

The rejections of claim 2, 3 and 6 is respectfully traversed. Claim 2 includes structural limitations which are not disclosed or suggested in Gasworth. Thus, while the Examiner has outlined some of the language in claim 2 and has tried to draw a parallel with the Gasworth apparatus, it is clear that the Examiner has omitted some elements, features or functions recited in claim 2 which are not disclosed or suggested in the reference.

abstract
To begin with, the present invention is for a device for treating wafers with a plasma jet. Gasworth on the other hand is for an apparatus for producing diamonds by chemical vapor deposition. The applications, therefore, are very different. Also, while the Examiner has stated that Gasworth discloses a "plasma jet generator", the Examiner has failed to state that claim 2 also requires the holders to be in the form of *horizontal* platforms; that the plasma jet generator be arranged to generate a plasma jet directed *upwardly* and that the gas supplying means be located so that the resulting gas flow permits the positioning of the platform *near* a holder *while avoiding the need to provide additional cooling of the plasma*

generator due to natural convection of the hot gases. Gasworth, on the other hand, uses a substrate 44 that is *inclined* to the horizontal and, in Fig. 1, is shown to be practically in a vertical plane. The diamond film is deposited on the substrate. Also, the plasma jet is directed downwardly, the exact opposite of the claimed language. Further, the gas flow in Gasworth appears to enter cooling plate 50 and is not "in fluid flow communication " with the gas supplying means to perform the function required in the last four lines of claim 2. In fact, the Examiner has pointed out that the gas supply means in Gasworth is shown at 18, 20 while the cooling means is shown at 52 in Fig.1. It would be evident to one skilled in the art that these two elements are not in fluid flow communication as contemplated by the invention and clearly recited in claim 2.

The Examiner's position in paragraph (vi) on page 4 of the Office Action is respectfully traversed. Claim 2 recites specific structure to perform the desired functions, including the arrangement of the wafer 29 as shown in Fig. 4 during use. Clearly, this could not be achieved with

Gasworth. It should be evident that simply flipping the Gasworth device "upside-down" as proposed by the Examiner would not result in the same structure and/or same function. Even after being flipped, Gasworth would still not result in a device that would permit the positioning of a wafer near the holder as a result of the dynamics of the gas flows, gravity, etc. As noted, in Gasworth the film 56 is not near but on the substrate 44 which is, in turn, mounted directly on the drive. However, clearly, the device needed to deposit a diamond film on a substrate is quite different than treating a wafer. It is respectfully submitted that the Gasworth device cannot practically be used for the treatment of wafers in accordance with the invention.

Claim 3 depends on claim 2 and should be allowed with the allowance thereof.

In view of the foregoing, it is respectfully requested that the rejection in the Office Action be reconsidered and withdrawn.

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This application is now believed in condition for allowance. Early allowance and issuance is, accordingly, respectfully solicited.

Dated: August 27, 2001

Respectfully submitted,

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Myron Greenspan

Attorney

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August 27, 2001

Date

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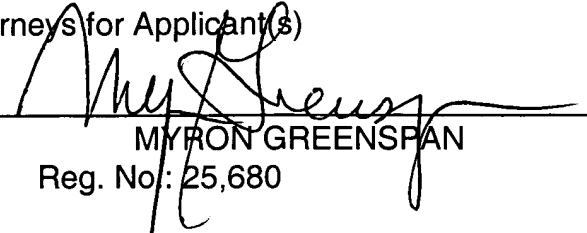
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SUPPLEMENTAL PRELIMINARY AMENDMENT

Dated: January 4, 2002
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ATTACHMENT A. Amended claims 2 and 5, with additions and deletions shown.

2. (Amended) A device for treating wafers with a plasma jet, comprising a plasma jet generator; gas supplying means; a set of holders for wafers to be treated, said holders having a drive for effecting angular displacement thereof and for facing a generator plasma jet; each of the holders being made in the form of a horizontal platform mounted for rotation about an axis passing through a geometric center thereof and perpendicular to a plane of said platform; said plasma jet and wafer holders being displaced with respect to each other and may be in or out of contact with each other, [a] said plasma jet generator being located such that a plasma jet is directed upwardly in respect of a plane of said horizontal platforms of said wafer holders; and cooling means associated with each horizontal platform in fluid flow communication with said gas supplying means and located such that resulting gas flows permit the positioning of the platform near a holder and improve cooling of individual

areas over the wafer surfaces while avoiding the need to provide additional cooling of said plasma generator due to natural convection of the hot gases.

5. (Amended) A device as defined in claim [4] 14, wherein said closed chamber is provided with a window in which a movable shutter is mounted, said manipulator being located to contact with said storage devices directly and with said wafer holder indirectly, through the chamber window.
